

STATUS OF IMPLEMENTATION OF DAVIS-BESSE LESSONS LEARNED TASK FORCE RECOMMENDATIONS

**Office of Nuclear Reactor
Regulation (NRR)**

**Office of Nuclear Regulatory
Research (RES)**

Agenda

- **Overview** **J. Dyer**
- **Stress Corrosion Cracking** **W. Bateman**
- **Operating Experience** **W. Beckner**
- **Inspection Program Management** **S. Richards**
- **Barrier Integrity** **N. Chokshi**
- **Summary** **J. Dyer**

Overview

- **Action Plans developed for 21 High Priority items (3/03)**
 - **Responsible Office**
 - **Schedule**
 - **Resources**

Overview (cont.)

- **Remaining items integrated into individual Office operational activities via Planning, Budgeting and Performance Management (PBPM) process**
- **Status reported semiannually to EDO and forwarded to Commission**

Overview (cont.)

- **23 recommendations were scheduled for completion by 12/03**
 - **16 were completed including all 7 scheduled high priority items**
 - **7 lower priority rescheduled**
- **22 recommendations are planned for completion by 12/04**
- **5 recommendations are planned for completion by 12/05**
- **6 recommendations TBD**

Stress Corrosion Cracking (SCC)

- **LLTF recommendations incorporated in Action Plan**
 - **SCC and Boric Acid Corrosion database**
 - **SCC susceptibility model evaluation**
 - **ASME Code changes**
 - **10 CFR 50.55a revision**
 - **Inspection Program Guidance**

Stress Corrosion Cracking (cont.)

- **LLTF recommendations have been combined with previously initiated actions**
- **Progress being made on activities**
- **Industry response has been generally positive**

Stress Corrosion Cracking (cont.)

- **Activities completed and ongoing since Davis-Besse**
 - **Bulletin and follow-up questions on licensees' boric acid corrosion control programs (BL 2002-01)**
 - **Regulatory Issues Summary (RIS 2002-13) summarizing staff review of responses to BL 2002-01**

Stress Corrosion Cracking (cont.)

- Bulletin 2002-02 on upper head penetration inspections**
- Order EA-03-009 plus revision on upper head inspections**

Stress Corrosion Cracking (cont.)

- Bulletin 2003-02 on lower vessel head penetration inspections**
- Pressurizer Generic Communication**

Stress Corrosion Cracking (cont.)

- **Staff completed review and evaluation of responses to Bulletin 2002-01 regarding Boric Acid Corrosion Control programs and published results in RIS 2003-13 (8/03)**

Stress Corrosion Cracking (cont.)

- **Bulletin 2002-02 on upper vessel head penetration inspection was precursor to the Order**
- **Interim requirements for Reactor Pressure Vessel head inspection issued through Order EA-03-009 (2/03)**

Stress Corrosion Cracking (cont.)

- **Staff reviewing inspection results and processing requests for alternatives to Order (Ongoing)**
- **Temporary Inspection Procedure TI 2515/150 was issued for regional inspector guidance (8/03)**

Stress Corrosion Cracking (cont.)

- **Bulletin 2003-02 issued after discovery of leakage on bottom head penetrations at South Texas Project (8/03)**
 - **TI 2515/152 issued (11/03)**
 - **No additional cracking found in inspections to date**

Stress Corrosion Cracking (cont.)

- **Staff and industry responding to pressurizer heater sleeve leaks**
 - **Staff developing generic communication**
 - **Westinghouse Owners Group letter on inspection of Combustion Engineering pressurizer heater sleeves**

Stress Corrosion Cracking (cont.)

- **RES activities related to SCC**
 - **Integrated assessment to support regulatory decisions/actions**
 - **Components of research programs**

Stress Corrosion Cracking (cont.)

- Cooperative programs**
- Results used to support review and confirmation of industry programs**

Stress Corrosion Cracking (cont.)

- **Challenge: Replace interim guidelines in Orders and Bulletins with Rulemaking**
 - **Endorsement of revised ASME code**
 - **Industry working on alternative guidelines and technical justification**

Stress Corrosion Cracking (cont.)

- **Current plan**
 - **Incorporate Order into 10CFR50.55a**
 - **Develop a rulemaking plan**
 - **Also considering developing a performance-based rule**
 - **Needs detailed evaluation**

Operating Experience

- **Interoffice task force defined the objectives and attributes of an effective Operating Experience program**
 - **Report documenting specific program improvement proposals issued in 11/03**

Operating Experience (cont.)

- **Line management to develop implementation plan (4/04)**
- **Framework to be established by 12/04**
 - **Program will be dynamic and continuous improvements will occur**

Operating Experience (cont.)

- **Key Findings/Recommendations**
 - **Agency's current activities contain necessary functions**
 - **Clear vision lacking of how activities should function together to support licensing, inspection and research**

Operating Experience (cont.)

- **Recommends establishment of clearinghouse within single organization**

Operating Experience (cont.)

- **Improvements to date:**
 - **Organizational alignment of inspection and Operating Experience programs**
 - **Significant enhancement in web-based access**
 - **Improved communications to end users**

Operating Experience (cont.)

- **Separately reviewing previous generic communications to assess effectiveness of commitments**
 - **Initial screening completed (7/03)**
 - **Selection of focus areas completed with management review and input (11/03)**
 - **Verification Plan (3/04)**

Operating Experience (cont.)

- **Implementation Challenges**
 - **Resource intensive**
 - **Effectiveness of interoffice coordination**

Inspection & Program Management

- **The LLTF recommended several changes including:**
 - **More focused inspections and follow-up to longstanding equipment issues**
 - **Enhanced inspector training**
 - **Enhanced oversight structure for plants in extended outages (IMC 0350)**

Inspection & Program Management (cont.)

- **Inspection guidance was revised to require resident inspector screening of all corrective action items**
- **A new requirement was added to inspection program to perform a semi-annual trend review focused on recurring equipment issues**

Inspection & Program Management (cont.)

- **Program guidance was enhanced regarding NRC oversight of plants in extended shutdowns**

Inspection & Program Management (cont.)

- **A new “read and sign” training program has been developed and implemented**
- **Training modules completed include boric acid corrosion, stress corrosion cracking, and the importance of maintaining a questioning attitude**

Inspection & Program Management (cont.)

- **Guidelines were issued for ensuring a more complete documentation of important staff decisions (3/03)**
 - **Follow up effectiveness review in progress**

Inspection & Program Management (cont.)

- **Challenges**
 - **Need to enhance process for timely incorporation of operating experience into inspection program**

Barrier Integrity

- **The LLTF recommended that the requirements for Reactor Coolant System (RCS) leakage be improved**
 - **Assure that plants do not operate with Reactor Coolant Pressure Boundary (RCPB) leakage**
 - **Plants can discriminate between unidentified leakage and RCPB leakage**

Barrier Integrity (cont.)

- **Initiated research program at Argonne National Laboratory (ANL) to develop technical basis for RCS leakage requirements (7/04)**
- **Identified units with nonstandard RCPB leakage requirements (7/03)**

Barrier Integrity (cont.)

- **Identified improvements to existing Performance Indicators (PI) (6/04)**
 - **All leakage Technical Specifications (TS) could be monitored by PIs and compared to the allowable limits**

Barrier Integrity (cont.)

- **Barrier Integrity Program at ANL**
 - **Evaluate leak rates associated with degradation of various RCPB components (3/04)**
 - **Develop database of leakage events (4/04)**
 - **Evaluate capabilities of leakage detection systems (5/04)**

Barrier Integrity (cont.)

- **Assess adequacy of plant alarm response procedures (3/04)**
- **Develop recommendations for inspection guidance and RCS leakage requirements (3/05)**
- **Develop and, if feasible, implement PI capable of tracking number, duration, and rate of primary system leaks (12/05)**

Barrier Integrity (cont.)

- **Completed preliminary scoping study of risk assessments involving passive component degradation**
- **Recommend multi-discipline review to identify potential risk from combination of failure mechanisms and RCPB locations**

Barrier Integrity (cont.)

- **Technical basis will be used to support potential revisions to requirements using appropriate regulatory processes**

Summary

- **Significant progress on implementing recommendations**
- **Effort is integrated with other activities**
 - **Ensures efficient and effective use of resources**
 - **Maximizes safety benefit**
- **Activities have resulted in significant positive outcomes for the agency and nuclear industry**